

U.S. Patent Application Serial No. 10/712,995
Response filed March 15, 2005
Reply to OA dated December 15, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Please cancel claim 19 and amend the remaining claims as follows:

Listing of Claims:

Claim 1-12. (Canceled).

Claim 13. (Currently Amended) A manufacturing method for an organic/inorganic hybrid hydrogel comprising the steps of:

preparing a homogeneous solution containing (A') which corresponds to a monomer of a water soluble polymer (A), a water swelling clay mineral (B) which can be homogeneously dispersed in water, and water (C); and

polymerizing the monomer (A') under the presence of the clay mineral (B) such that after polymerization the organic/inorganic hybrid hydrogel has a tensile load at break of more than 0.1N, a tensile elongation at break of more than 100%. and a load at a tensile elongation of 100% is more than 0.01N in the case of using said organic/inorganic hybrid hydrogel, having a water content defined by $\{C/(A+B)\}$ is 600 to 1000 weight %, for a sample which has an initial sectional area of 0.237 cm².

Claim 14. (Currently Amended) A manufacturing method for an organic/inorganic hybrid

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hydrogel according to claim 13 ~~claim 12~~, wherein said homogeneous solution containing (A'), (B), and (C) further comprises an organic solvent which is miscible with water.

Claim 15. (Original) A manufacturing method for an organic/inorganic hybrid hydrogel according to claim 13, wherein the weight ratio of the water swelling clay mineral (B) to the monomer (A') of the water soluble polymer (A) is within a range of 0.01 to 10.

Claim 16. (Currently Amended) A manufacturing method for an organic/inorganic hybrid hydrogel according to claim 13, wherein said water soluble polymer (A) includes ~~acrylamide derivatives and/or methacrylamide derivatives~~ polymers obtained by polymerization of acrylamido compounds and/or methacrylamido compounds.

Claim 17. (Currently Amended) A manufacturing method for an organic/inorganic hybrid hydrogel comprising the steps of:

preparing a homogeneous solution containing (A') which corresponds to a monomer of a water soluble polymer (A), a water swelling clay mineral (B) which can be homogeneously dispersed in water, and water (C); and

polymerizing the monomer (A') under the presence of the clay mineral (B) according to claim 13,

wherein said organic/inorganic hybrid hydrogel has a critical temperature (T_c), at which the

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organic/inorganic hybrid hydrogel changes reversibly between the transparent and swollen state at a lower temperature of the critical temperature and an opaque and shrunken state at a higher temperature of the critical temperature.

Claim 18. (Original) A manufacturing method for an organic/inorganic hybrid hydrogel according to claim 17, wherein the volume ratio of said organic/inorganic hybrid hydrogel in water below the critical temperature to that above the critical temperature is equal to 10 or more.

Claim 19. (Canceled).

Claim 20. (Currently Amended) A manufacturing method for an organic/inorganic hybrid hydrogel comprising the steps of:

preparing a homogeneous solution containing (A') which corresponds to a monomer of a water soluble polymer (A), a water swelling clay mineral (B) which can be homogeneously dispersed in water, and water (C); and

polymerizing the monomer (A') under the presence of the clay mineral (B) according to claim 13,

wherein the water content defined by $\{C_{max}/(A+B)\}$ of said organic/inorganic hybrid hydrogel in the equilibrium swollen state is equal to or more than 2000 weight %.

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Claim 21. (Currently Amended) A manufacturing method for an organic/inorganic hybrid hydrogel comprising the steps of:

preparing a homogeneous solution containing (A') which corresponds to a monomer of a water soluble polymer (A), a water swelling clay mineral (B) which can be homogeneously dispersed in water, and water (C); and

polymerizing the monomer (A') under the presence of the clay mineral (B) according to claim 13,

wherein a total transmission in the visible range of said organic/inorganic hybrid hydrogel is more than 80 %, when a 25 mm thick sample of said organic/inorganic hydrogel containing water (C) at 10 times (weight basis) higher than the content of an polymer (A) is used.